

What is claimed is:

1. An ink jet recording apparatus for jetting ink onto a recording medium comprising:

an ink cartridge;

an ink jet recording head; and

an ink supply tube which connects the ink cartridge and the ink jet recording head,

wherein a driving frequency of the ink jet recording head is 15 kHz or above, and an average surface roughness of an inner surface of the ink supply tube is 200 to 2,000 nm.

2. The ink jet recording apparatus of claim 1, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a viscosity of 3.0 to 8.0 mPa·s.

3. The ink jet recording apparatus of claim 1, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a surface tension of 20 to 35 mN/m.

4. The ink jet recording apparatus of claim 1, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a dissolved oxygen concentration of 4 ppm or below.

5. The ink jet recording apparatus of claim 4, wherein the dissolved oxygen concentration is 2 ppm or below.

6. The ink jet recording apparatus of claim 4, wherein the dissolved oxygen concentration is 0.01 to 1 ppm or below.

7. The ink jet recording apparatus of claim 1, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a foaming power of 100 mm or below.

8. The ink jet recording apparatus of claim 1, wherein the driving frequency of the ink jet recording head is 25 kHz or above.

9. The ink jet recording apparatus of claim 1, wherein the driving frequency of the ink jet recording head is 35 kHz or above.

10. The ink jet recording apparatus of claim 1, wherein a contact angle of the ink to the inner surface of the ink supply tube is 60° or below.

11. The ink jet recording apparatus of claim 1, wherein a contact angle of the ink to the inner surface of the ink supply tube is 10° to 60°.

12. The ink jet recording apparatus of claim 1, wherein an average roughness of the inner surface of the ink supply

tube is 400 to 1,000 nm.

13. The ink jet recording apparatus of claim 1, wherein the colorant is a pigment.

14. The ink jet recording apparatus of claim 1, wherein the ink contains 1 to 15 wt% of triethylene glycol monobutyl ether, 1,2-hexanediol, 1,2-pentanediol or *t*-butanol.

15. The ink jet recording apparatus of claim 1, wherein a total content of calcium ion, magnesium ion and iron ion in the ink is 10 ppm or below.

16. The ink jet recording apparatus of claim 1, wherein the ink contains an acetylene glycol-base nonionic surfactant.

17. An ink jet recording method for jetting ink onto a recording medium by using an ink jet recording apparatus which has an ink cartridge, an ink jet recording head, and an ink supply tube having an average surface roughness of an inner surface of 200 to 2,000 nm, which connects the ink cartridge and the ink jet recording head, comprising:

driving the ink jet recording head at a driving frequency of 15 kHz or above.

18. The ink jet recording method of claim 17, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a viscosity of 3.0 to 8.0 mPa·s.
19. The ink jet recording method of claim 17, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a surface tension of 20 to 35 mN/m.
20. The ink jet recording method of claim 17, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a dissolved oxygen concentration of 4 ppm or below.
21. The ink jet recording method of claim 20, wherein the dissolved oxygen concentration is 2 ppm or below.
22. The ink jet recording apparatus of claim 20, wherein the dissolved oxygen concentration is 0.01 to 1 ppm or below.
23. The ink jet recording method of claim 17, wherein the ink contains a colorant, water and a water-soluble organic solvent, the ink having a foaming power of 100 mm or below.
24. The ink jet recording method of claim 17, wherein the driving frequency of the ink jet recording head is 25 kHz

or above.

25. The ink jet recording method of claim 17, wherein the driving frequency of the ink jet recording head is 35 kHz or above.

26. The ink jet recording method of claim 17, wherein a contact angle of the ink to the inner surface of the ink supply tube is  $60^\circ$  or below.

27. The ink jet recording method of claim 17, wherein a contact angle of the ink to the inner surface of the ink supply tube is  $10^\circ$  to  $60^\circ$ .

28. The ink jet recording method of claim 17, wherein an average roughness of the inner surface of the ink supply tube is 400 to 1,000 nm.

29. The ink jet recording apparatus of claim 17, wherein the colorant is a pigment.

30. The ink jet recording method of claim 17, wherein the ink contains 1 to 15 wt% of triethylene glycol monobutyl ether, 1,2-hexanediol, 1,2-pentanediol or *t*-butanol.

31. The ink jet recording method of claim 17, wherein

a total content of calcium ion, magnesium ion and iron ion in the ink is 10 ppm or below.

32. The ink jet recording method of claim 17, wherein the ink contains an acetylene glycol-base nonionic surfactant.